Bridging EO capacities and country needs for informed decisions to reach Land Degradation Neutrality

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ESA Symposium on Earth Observation for Soil Protection and Restoration
Decision 9/COP.13: The COP “Invites the Group on Earth Observation to support the efforts of Parties to the United Nations Convention to Combat Desertification in implementing the Convention by providing space-based information and in situ measurements to assist countries in fulfilling the reporting requirements for Sustainable Development Goal indicator 15.3.1 and fostering data access, national data capacity-building and the development of standards and protocols”

Primary mandate on **reporting**, via Decision 9/COP.13

Periodically reinforced via decisions at COP14 and COP15, which go beyond reporting into using Earth observations to inform decision making and planning to reach LDN.
GEO-LDN – A global network
How GEO-LDN supports UNCCD parties

- **Human capacity**: trained experts who can help countries to make sense of the data
  - Webinars, trainings, e-learnings, post-graduate LDN studies at UENR in Ghana
  - Establishing a LDN helpdesk
- **Working with partner countries** globally who want to implement their voluntary LDN targets
- **Development of improved datasets** for the next reporting cycle

Country teams from Senegal and Brazil working on their LDN roadmap during the GEO-LDN Dialogue Forum in South Africa
Actionable data needs and emerging datasets

- **Technologies, computing resources**: available imagery, crowd-sourcing for validation, machine learning, cloud computing and file formats like CoG, accessibility of datasets through STAC)

- **Combination of data sources** (Denser in-situ sampling point networks, imagery, ML) enables better mapping and modeling of SOC over time

Soon to be published: There is **enough public data to produce SOC maps at up to 30 m resolution**, and for various periods e.g. 2000–2005, 2005–2010, 2010–2015, 2015–2020, ...
Key messages

• Global SOC datasets do not yet meet the **requirements of countries** (especially for some regional geographies), but solutions are emerging

• **“Frontier” technologies** like AI, together with new datasets (satellite + in situ) show promise for filling gaps in space and time and will result in global datasets with higher resolution and less uncertainty

• Increased and additional technical and financial **support for soil data inventories** is needed. There would be a significant return on investment for this kind of work (inventory requirements of the UNFCCC, carbon credits based on SOC data).
Thank you

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